Data Validation Checklist
Semivolatile Organic Analyses

Project:	35TH Avenue Superfund Site	Project No:	60430028; 1
Laboratory:	TestAmerica - Savannah, GA	Job ID.:	680-107310-1
Method:	SW-846 8270D Low-Level (PAH)	Associated Samples:	Refer to **Attachment A** (Sample Summary)
Matrix:	Soil	Date(s) Collected:	11/13/2014
Reviewer:	Teresa Amentt Jennings, URS Group, Inc.	Date:	08/24/2015
Concurrence[1]:	Martha Meyers-Lee, URS Group, Inc.	Date:	08/31/2015

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample storage and preservation requirements met? If temperature >6°C, then J/UJ flag results.	✓				
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Were holding times met (≤7 and 14 days from collection to extraction for aqueous and solid samples, respectively; ≤40 days from extraction to analysis)? If not, then J/UJ flag sample results. If grossly (2x) exceeded, then flag J/R.	✓				
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?	✓				
8. Were samples with analyte concentrations exceeding the calibration range of the instrument re-analyzed at a higher dilution? If not, then J flag sample result.			✓	All samples were analyzed at a dilution due to elevated concentrations of target analytes and the nature of the sample matrix.	
9. Was a method blank extracted with each batch (i.e., one per 20 samples, per batch, per matrix and per level)?	✓				
10. Were target analytes detected in the method blank?		✓			
11. Are equipment/rinsate blanks associated with every sample? If no, note in DV report.		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once a week, per the client. A rinsate blank is not associated with this sampling event. Blank contamination will be evaluated based on method blank results.	
12. Were target analytes detected in equipment/rinsate blanks?			✓		

[1] Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
13. Were analytes detected in samples below the blank contamination action level? If yes, U flag positive sample results <5x associated blank concentration (10x for common blank contaminants – phthalates)			✓	Blank contamination does not exist.	
14. Is a field duplicate associated with this Job?	✓			CV1063A-CSD0-4" (680-107310-4) is a field duplicate of CV1063A-CS0-4" (680-107310-3).	
15. Was precision deemed acceptable as defined by the project plans?	✓			Refer to **Attachment B** (Field Duplicate Evaluation)	
16. Were DFTPP ion abundance criteria (i.e., Table 3 of SW-846 8270D) met? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓			Alternate tuning criteria were used by the laboratory (i.e., EPA Method 525.2). All ion abundance criteria were met per EPA Method 525.2.	
17. Were samples analyzed within 12 hours of the DFTPP tune? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓				
18. Were initial and continuing calibration standards analyzed at the proper frequency for each instrument? • Ensure that a minimum of five standards are used for the initial calibration. If no, use professional judgment to determine the effect on the data and note in the reviewer narrative. • An initial calibration is to be associated with each sample analysis. • A continuing calibration standard is to be analyzed for every 12 hours of sample analysis per instrument.	✓			Instrument ID: CMSK • Initial Calibration (ICAL): 11/19/2014 • Initial Calibration Verification (ICV): 11/19/2014 @ 15:07	
19. Were calibration results within laboratory/project specifications? • ICAL (Criteria: $\leq$20 mean %RSD ($\leq$50% for poor performers), OR r$\geq$0.995, OR $r^2\geq$0.99, and RRF $\geq$0.050 ($\geq$0.010 for poor performers)): o If %RSD>20 (>50% for poor performers), or r <0.995, or r^2 <0.995, then J flag positive results and UJ flag non-detects o If mean RRF <0.050 (<0.010 for poor performers), then J flag positive results and R flag non-detects (unless the lab analyzed a detectability check standard) • ICV and CCV (ICV Criteria: $\leq \pm$30%D; CCV Criteria: $\leq\pm$20%D ($\leq$50% for poor performers) and RF $\geq$0.050 ($\geq$0.010 for poor performers)): o If %D> Control Limit (>50% for poor performers), then J flag positive results and UJ flag non-detects o If RF <0.050 (<0.010 for poor performers), then UJ flag non-detected semivolatile target compounds	✓				
20. Was a LCS prepared for each batch and matrix?	✓				
21. Were LCS recoveries within lab control limits? If no, J flag positive results when %R >Upper Control Limit (UCL) and J/R flag results when %R <Lower Control Limit (LCL).	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
22. Were LCS/LCSD RPD within lab specifications? If no, J flag positive results and UJ flag non-detects			✓	LCS only	
23. Was a MS/MSD pair extracted at the proper frequency (one per 20 samples per batch)?	✓				
24. Is the MS/MSD parent sample a project-specific sample?	✓			Prep Batch 359074: 680-107310-A-6 (CV0971A0APa-CS0-4"), MS/MSD	
25. For all analytes with native sample concentrations < 4 x spiking level, were MS and MSD recoveries within laboratory/project specifications? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If either MS or MSD recovery meets control limits, qualification of data is not warranted. • MS and MSD %R<10: J and R Flag positive and ND results, respectively • MS and MSD %R >10 and <LCL: J Flag positive and UJ flag non-detect results • MS and MSD R% >UCL (or 140): J Flag positive results		✓		680-107310-6 (CV0971A0APa-CS0-4"): • Benzo[k]fluoranthene @ 33 and 97%R (38-148%R). Qualification of data not required[2]. • Fluoranthene @ 28 and 85%R (36-147%R). Qualification of data not required[2]. • Pyrene @ 21 and 102%R (38-145%R). Qualification of data not required[2].	
26. For all analytes with native sample concentrations < 4 x spiking level, were laboratory criteria met for precision during the MS and MSD analysis? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If %RPD > UCL, J flag positive result and UJ flag non-detect result	✓				
27. Were surrogate recoveries within lab/project specifications? • If %R for 1 Acid or BN surrogates <10, then J flag positive and R flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R >UCL, then J flag positive associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN , with 1 %R >UCL and 1 %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results)		✓		Surrogate o-terphenyl was not recovered (0%) during the diluted analysis of all samples. Qualification of sample results is not warranted, as the surrogate compound was diluted out of the samples.	
28. Were internal standard (IS) results within lab/project specifications?	✓				

[2]The recovery of either MS or MSD met control limits.

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
• If IS area counts are less than 50% of the midpoint calibration standard, then J flag positive and UJ flag non-detect associated sample results • If IS area counts are greater than 100% of the midpoint calibration standard, then J flag positive results • If extremely low area counts are reported or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated, J flag positive and R flag non-detect results • If retention time of sample's internal standard is not within 30 seconds of the associated calibration standard, R flag associated data. • The chromatographic profile for that sample must be examined to determine if any false positives or negatives exists. For shifts of large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results need not be qualified as R, if mass spectral criteria are met.					
29. Were lab comments included in report?	✓			Refer to **Attachment C** (Case Narrative)	
Comments: The data validation was conducted in accordance with the *Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1* (OTIE, October 2012). The data review process was modeled after the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Organic Methods Data Review* (EPA, October 1999) and *USEPA CLP NFG for Low Concentration Organic Methods Data Review* (EPA, June 2001). Sample results have been qualified based on the results of the data review process (**Attachment D**). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment.					

DV Flag Definitions:

J- The result is an estimated quantity, but the result may be biased low.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.

UJ The analyte was analyzed for, but was not detected. The reported limit is approximate and may be inaccurate or imprecise.

ATTACHMENT A

SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-107310-1
Sdg Number: 680-107310-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-107310-1	CV1061A-CS0-4"	Solid	11/13/2014 1035	11/15/2014 0930
680-107310-2	CV1061B-CS0-4"	Solid	11/13/2014 1040	11/15/2014 0930
680-107310-3	CV1063A-CS0-4"	Solid	11/13/2014 1105	11/15/2014 0930
680-107310-4	CV1063A-CSD0-4"	Solid	11/13/2014 1110	11/15/2014 0930
680-107310-5	CV1063B-CS0-4"	Solid	11/13/2014 1115	11/15/2014 0930
680-107310-6	CV0971A0APa-CS0-4"	Solid	11/13/2014 1145	11/15/2014 0930
680-107310-6MS	CV0971A0APa-CS0-4"	Solid	11/13/2014 1145	11/15/2014 0930
680-107310-6MSD	CV0971AOAPa-CS0-4"	Solid	11/13/2014 1145	11/15/2014 0930

ATTACHMENT B

FIELD DUPLICATE EVALUATION

Evaluation of Field Duplicate Results **Attachment B**

Analyte	CV1063A-CS0-4" 680-107310-3	RL	CV1063A-CSD0-4" 680-107310-4	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
Benzo[a]anthracene	310	82	270	81	µg/kg	407.5	NA	40	163	None, absolute difference ≤ 2x Avg RL
Benzo[a]pyrene	320	82	280	81	µg/kg	407.5	NA	40	163	None, absolute difference ≤ 2x Avg RL
Benzo[b]fluoranthene	610	82	520	81	µg/kg	407.5	16	NA	NA	None, RPD ≤ 50%
Benzo[g,h,i]perylene	280	82	230	81	µg/kg	407.5	NA	50	163	None, absolute difference ≤ 2x Avg RL
Benzo[k]fluoranthene	180	82	160	81	µg/kg	407.5	NA	20	163	None, absolute difference ≤ 2x Avg RL
Chrysene	440	82	390	81	µg/kg	407.5	NA	50	163	None, absolute difference ≤ 2x Avg RL
Dibenz(a,h)anthracene	110	82	85	81	µg/kg	407.5	NA	25	163	None, absolute difference ≤ 2x Avg RL
Fluoranthene	380	82	380	81	µg/kg	407.5	NA	0	163	None, absolute difference ≤ 2x Avg RL
Indeno[1,2,3-cd]pyrene	220	82	210	81	µg/kg	407.5	NA	10	163	None, absolute difference ≤ 2x Avg RL
1-Methylnaphthalene	110	82	110	81	µg/kg	407.5	NA	0	163	None, absolute difference ≤ 2x Avg RL
2-Methylnaphthalene	140	82	130	81	µg/kg	407.5	NA	10	163	None, absolute difference ≤ 2x Avg RL
Naphthalene	130	82	130	81	µg/kg	407.5	NA	0	163	None, absolute difference ≤ 2x Avg RL
Phenanthrene	260	82	260	81	µg/kg	407.5	NA	0	163	None, absolute difference ≤ 2x Avg RL
Pyrene	420	82	340	81	µg/kg	407.5	NA	80	163	None, absolute difference ≤ 2x Avg RL

Note: If the analyte was not detected, then the cell was left blank.

µg/kg - micrograms per kilogram
NA - Not applicable
RL - Reporting limit
RPD - Relative percent difference

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

ATTACHMENT C

CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-107310-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 11/15/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.3 C.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) LOW LEVEL PAH

Samples CV1061A-CS0-4" (680-107310-1), CV1061B-CS0-4" (680-107310-2), CV1063A-CS0-4" (680-107310-3), CV1063A-CSD0-4" (680-107310-4), CV1063B-CS0-4" (680-107310-5) and CV0971A0APa-CS0-4" (680-107310-6) were analyzed for Semivolatile Organic Compounds (GC/MS) Low level PAH in accordance with EPA SW846 Method 8270D. The samples were prepared on 11/17/2014 and analyzed on 11/19/2014.

Samples CV1061A-CS0-4" (680-107310-1)[10X], CV1061B-CS0-4" (680-107310-2)[10X], CV1063A-CS0-4" (680-107310-3)[10X], CV1063A-CSD0-4" (680-107310-4)[10X], CV1063B-CS0-4" (680-107310-5)[10X] and CV0971A0APa-CS0-4" (680-107310-6)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. As such, surrogate were diluted out and are not reported. Also elevated reporting limits (RLs) are provided.

Benzo[k]fluoranthene, Fluoranthene and Pyrene recovered outside the recovery criteria low for the MS of sample CV0971A0APa-CS0-4"MS (680-107310-6) in batch 680-359503.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP)

Samples CV1061A-CS0-4" (680-107310-1), CV1061B-CS0-4" (680-107310-2), CV1063A-CS0-4" (680-107310-3), CV1063A-CSD0-4" (680-107310-4), CV1063B-CS0-4" (680-107310-5) and CV0971A0APa-CS0-4" (680-107310-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/17/2014 and analyzed on 11/20/2014.

Lead recovered outside the recovery criteria low for the MS/MSD of sample CV0971A0APa-CS0-4' (680-107310-6) in batch 680-359921. Aluminum failed the recovery criteria high.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Samples CV1061A-CS0-4" (680-107310-1), CV1061B-CS0-4" (680-107310-2), CV1063A-CS0-4" (680-107310-3), CV1063A-CSD0-4" (680-107310-4), CV1063B-CS0-4" (680-107310-5) and CV0971A0APa-CS0-4" (680-107310-6) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 11/15/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ATTACHMENT D

QUALIFIED SAMPLE RESULTS

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV1061A-CS0-4'' | Lab Sample ID: 680-107310-1

Matrix: Solid | Lab File ID: 2KK1921.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 10:35

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 29.96(g) | Date Analyzed: 11/19/2014 19:40

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 15.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	79	U	79	39
208-96-8	Acenaphthylene	79	U	79	39
120-12-7	Anthracene	41	J	79	39
56-55-3	Benzo[a]anthracene	240		79	39
50-32-8	Benzo[a]pyrene	240		79	14
205-99-2	Benzo[b]fluoranthene	390		79	39
191-24-2	Benzo[g,h,i]perylene	230		79	39
207-08-9	Benzo[k]fluoranthene	170		79	24
218-01-9	Chrysene	390		79	39
53-70-3	Dibenz(a,h)anthracene	69	J	79	39
206-44-0	Fluoranthene	410		79	39
86-73-7	Fluorene	79	U	79	39
193-39-5	Indeno[1,2,3-cd]pyrene	170		79	39
90-12-0	1-Methylnaphthalene	120		79	37
91-57-6	2-Methylnaphthalene	110		79	39
91-20-3	Naphthalene	92		79	39
85-01-8	Phenanthrene	340		79	28
129-00-0	Pyrene	390		79	39

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV1061B-CS0-4'' | Lab Sample ID: 680-107310-2

Matrix: Solid | Lab File ID: 2KK1922.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 10:40

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 30.03(g) | Date Analyzed: 11/19/2014 20:03

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 14.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	78	U	78	38
208-96-8	Acenaphthylene	78	U	78	38
120-12-7	Anthracene	78	U	78	38
56-55-3	Benzo[a]anthracene	200		78	38
50-32-8	Benzo[a]pyrene	230		78	14
205-99-2	Benzo[b]fluoranthene	430		78	38
191-24-2	Benzo[g,h,i]perylene	210		78	38
207-08-9	Benzo[k]fluoranthene	130		78	23
218-01-9	Chrysene	320		78	38
53-70-3	Dibenz(a,h)anthracene	78		78	38
206-44-0	Fluoranthene	370		78	38
86-73-7	Fluorene	78	U	78	38
193-39-5	Indeno[1,2,3-cd]pyrene	180		78	38
90-12-0	1-Methylnaphthalene	55	J	78	36
91-57-6	2-Methylnaphthalene	65	J	78	38
91-20-3	Naphthalene	56	J	78	38
85-01-8	Phenanthrene	270		78	28
129-00-0	Pyrene	330		78	38

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV1063A-CS0-4'' | Lab Sample ID: 680-107310-3

Matrix: Solid | Lab File ID: 2KK1923.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 11:05

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 30.00(g) | Date Analyzed: 11/19/2014 20:25

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 18.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	82	U	82	40
208-96-8	Acenaphthylene	82	U	82	40
120-12-7	Anthracene	82	U	82	40
56-55-3	Benzo[a]anthracene	310		82	40
50-32-8	Benzo[a]pyrene	320		82	15
205-99-2	Benzo[b]fluoranthene	610		82	40
191-24-2	Benzo[g,h,i]perylene	280		82	40
207-08-9	Benzo[k]fluoranthene	180		82	24
218-01-9	Chrysene	440		82	40
53-70-3	Dibenz(a,h)anthracene	110		82	40
206-44-0	Fluoranthene	380		82	40
86-73-7	Fluorene	82	U	82	40
193-39-5	Indeno[1,2,3-cd]pyrene	220		82	40
90-12-0	1-Methylnaphthalene	110		82	38
91-57-6	2-Methylnaphthalene	140		82	40
91-20-3	Naphthalene	130		82	40
85-01-8	Phenanthrene	260		82	29
129-00-0	Pyrene	420		82	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV1063A-CSD0-4'' | Lab Sample ID: 680-107310-4

Matrix: Solid | Lab File ID: 2KK1924.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 11:10

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 29.99(g) | Date Analyzed: 11/19/2014 20:48

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 17.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	81	U	81	40
208-96-8	Acenaphthylene	81	U	81	40
120-12-7	Anthracene	81	U	81	40
56-55-3	Benzo[a]anthracene	270		81	40
50-32-8	Benzo[a]pyrene	280		81	15
205-99-2	Benzo[b]fluoranthene	520		81	40
191-24-2	Benzo[g,h,i]perylene	230		81	40
207-08-9	Benzo[k]fluoranthene	160		81	24
218-01-9	Chrysene	390		81	40
53-70-3	Dibenz(a,h)anthracene	85		81	40
206-44-0	Fluoranthene	380		81	40
86-73-7	Fluorene	81	U	81	40
193-39-5	Indeno[1,2,3-cd]pyrene	210		81	40
90-12-0	1-Methylnaphthalene	110		81	38
91-57-6	2-Methylnaphthalene	130		81	40
91-20-3	Naphthalene	130		81	40
85-01-8	Phenanthrene	260		81	29
129-00-0	Pyrene	340		81	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV1063B-CS0-4'' | Lab Sample ID: 680-107310-5

Matrix: Solid | Lab File ID: 2KK1925.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 11:15

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 30.04(g) | Date Analyzed: 11/19/2014 21:11

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 17.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	930		81	40
208-96-8	Acenaphthylene	81	U	81	40
120-12-7	Anthracene	1300		81	40
56-55-3	Benzo[a]anthracene	2800		81	40
50-32-8	Benzo[a]pyrene	2300		81	14
205-99-2	Benzo[b]fluoranthene	3100		81	40
191-24-2	Benzo[g,h,i]perylene	1400		81	40
207-08-9	Benzo[k]fluoranthene	1400		81	24
218-01-9	Chrysene	2900		81	40
53-70-3	Dibenz(a,h)anthracene	550		81	40
206-44-0	Fluoranthene	5100		81	40
86-73-7	Fluorene	710		81	40
193-39-5	Indeno[1,2,3-cd]pyrene	1400		81	40
90-12-0	1-Methylnaphthalene	910		81	37
91-57-6	2-Methylnaphthalene	970		81	40
91-20-3	Naphthalene	1200		81	40
85-01-8	Phenanthrene	6400		81	29
129-00-0	Pyrene	5000		81	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-107310-1

SDG No.: 680-107310-1

Client Sample ID: CV0971A0APa-CS0-4'' | Lab Sample ID: 680-107310-6

Matrix: Solid | Lab File ID: 2KK1920.D

Analysis Method: 8270D_LL_PAH | Date Collected: 11/13/2014 11:45

Extract. Method: 3546 | Date Extracted: 11/17/2014 12:45

Sample wt/vol: 30.01(g) | Date Analyzed: 11/19/2014 19:17

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: 15.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 359503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	79	U	79	39
208-96-8	Acenaphthylene	49	J	79	39
120-12-7	Anthracene	79		79	39
56-55-3	Benzo[a]anthracene	480		79	39
50-32-8	Benzo[a]pyrene	560		79	14
205-99-2	Benzo[b]fluoranthene	780		79	39
191-24-2	Benzo[g,h,i]perylene	490		79	39
207-08-9	Benzo[k]fluoranthene	340		79	24
218-01-9	Chrysene	660		79	39
53-70-3	Dibenz(a,h)anthracene	150		79	39
206-44-0	Fluoranthene	790		79	39
86-73-7	Fluorene	79	U	79	39
193-39-5	Indeno[1,2,3-cd]pyrene	450		79	39
90-12-0	1-Methylnaphthalene	72	J	79	37
91-57-6	2-Methylnaphthalene	96		79	39
91-20-3	Naphthalene	90		79	39
85-01-8	Phenanthrene	380		79	28
129-00-0	Pyrene	740		79	39

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131